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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,664	07/31/2003	Charles D. Combs	113692CON-1 (ATT.0020002)	7920
7590 02/25/2005 S. H. Dworetsky AT&T Corp One AT&T Way Room 2A-207 Bedminster, NJ 07921			EXAMINER PHAN, HANH	
			ART UNIT 2633	PAPER NUMBER

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/630,664	<b>Applicant(s)</b> COMBS ET AL.	
	<b>Examiner</b> Hanh Phan	<b>Art Unit</b> 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 42,49 and 50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42,49 and 50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is responsive to the Amendment filed 10/15/2004.
2. The indicated allowability of claims 42, 49 and 50 is withdrawn in view of the newly discovered reference(s) to Frigo (US Patent No. 5,521,734), Rideout et al (US Patent No. 5,880,863) and Brown (US Patent No. 6,523,177). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 42 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lu et al (U.S. Patent No. 5,880,865 cited by applicant) in view of Rideout et al (US Patent No. 5,880,863).

Regarding claims 42 and 49, referring to figure 6, Lu teaches a communication system, comprising:

a mux node (602) including a first lightwave interface device (603) for communication with a head end (i.e., CO-600), the mux node (602) further including a second lightwave interface device (604, 605) for transmitting a plurality of optical signal including analog and digital signals; and

a mini fiber node (ONU1-ONUn) including a third lightwave interface device (611) for receiving the optical signal from the second lightwave interface device of the mux node, the mini fiber node (ONU1-ONUn) being further configured to communicate analog and digital signals to end user equipment via a wired connection (col. 4, lines 58-67, col. 5, lines 1-16, and from col. 2, line 54 to col. 4, line14).

Lu differs from claims 42 and 49 in that he fails to teach the mux node includes a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes. However, Rideout in US Patent No. 5,880,863 teaches a mux node (i.e., remote unit #2, Fig. 3A) includes a radio frequency signal compiler (i.e., combiner 66, Fig. 3A) that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes (i.e., remote unit #1 and remote unit #3, Fig. 3A) (col. 6, lines 42-62). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the mux node includes a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes as taught by Rideout in the system of Lu. One of ordinary skill in the art would have been motivated to do this since Rideout suggests in column 6, lines 42-62 that using such the mux node includes a radio frequency signal compiler has advantage of allowing combining the individual signals into the multiplexed signal and providing an optical communication system with high speed and high capacity.

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5. Claims 42 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lu et al (U.S. Patent No. 5,880,865 cited by applicant) in view of Brown (US Patent No. 6,523,177).

Regarding claims 42 and 49, referring to figure 6, Lu teaches a communication system, comprising:

a mux node (602) including a first lightwave interface device (603) for communication with a head end (i.e., CO-600), the mux node (602) further including a second lightwave interface device (604, 605) for transmitting a plurality of optical signal including analog and digital signals; and

a mini fiber node (ONU1-ONU<sub>n</sub>) including a third lightwave interface device (611) for receiving the optical signal from the second lightwave interface device of the mux node, the mini fiber node (ONU1-ONU<sub>n</sub>) being further configured to communicate analog and digital signals to end user equipment via a wired connection (col. 4, lines 58-67, col. 5, lines 1-16, and from col. 2, line 54 to col. 4, line14).

Lu differs from claims 42 and 49 in that he fails to teach the mux node includes a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes. However, Brown in US Patent No. 6,523,177 teaches a mux node (330)(Fig. 2) includes a radio frequency signal compiler (235)(Fig. 2) that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes (300)(Fig. 2) (col. 2, lines 51-67 and col. 3, lines 1-23). Therefore, it would have been obvious to one having skill in the art at the time the invention was

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made to incorporate the mux node includes a radio frequency signal compiler that enables frequency division multiplexing of a plurality of upstream signals received from a corresponding plurality of mini fiber nodes as taught by Brown in the system of Lu. One of ordinary skill in the art would have been motivated to do this since Brown suggests in column 2, lines 51-67 and col. 3, lines 1-23 that using such the mux node includes a radio frequency signal compiler has advantage of allowing combining the individual signals into the multiplexed signal and providing an optical communication system with high speed and high capacity.

6. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Lu et al (U.S. Patent No. 5,880,865 cited by applicant) in view of Frigo (US Patent No. 5,521,734).

Regarding claim 50, referring to figure 6, Lu teaches a network node (602) that communicates between a head end (i.e., CO-600) and a plurality of mini fiber nodes (OUN1-ONUn), each of the plurality of mini fiber nodes being configured to communicate analog and digital signals to end user equipment via a wired connection, comprising:

- a first lightwave interface device (603) for communication with a head end:

- a second lightwave interface device (604, 605) for transmitting a plurality of optical signals to a respective plurality of mini fiber nodes, wherein at least two of the optical signals include both analog and digital signals (col. 4, lines 58-67, col. 5, lines 1-16, and from col. 2, line 54 to col. 4, line14).

Lu differs from claim 50 in that he fails to teach a mux/demux/router component that is operative to receive electrical signals that have been converted from optical signals received from the head end, demultiplexs the received electrical signals and forwards separate demultiplexed signals to the second lightwave interface device that transmits the separate demultiplexed signals to designated mini fiber nodes. However, Frigo in US Patent No. 5,521,734 teaches a mux/demux/router component (220)(Fig. 3) that is operative to receive electrical signals that have been converted from optical signals received from the head end, demultiplexs (i.e., DMUX 128)(Fig. 3) the received electrical signals and forwards separate demultiplexed signals to the second lightwave interface device (116)(Fig. 3) that transmits the separate demultiplexed signals to designated mini fiber nodes (i.e., ONU#1-ONU<sub>n</sub>-1)(col. 4, lines 37-61). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the mux/demux/router component that is operative to receive electrical signals that have been converted from optical signals received from the head end, demultiplexs the received electrical signals and forwards separate demultiplexed signals to the second lightwave interface device that transmits the separate demultiplexed signals to designated mini fiber nodes as taught by Frigo in the system of Lu. One of ordinary skill in the art would have been motivated to do this since Frigo suggests in column 4, lines 37-61 that using such a mux/demux/router component has advantage of allowing distributing the signals from the central office to the designated mini fiber nodes.

***Response to Arguments***

7. Applicant's arguments with respect to claims 42, 49 and 50 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**